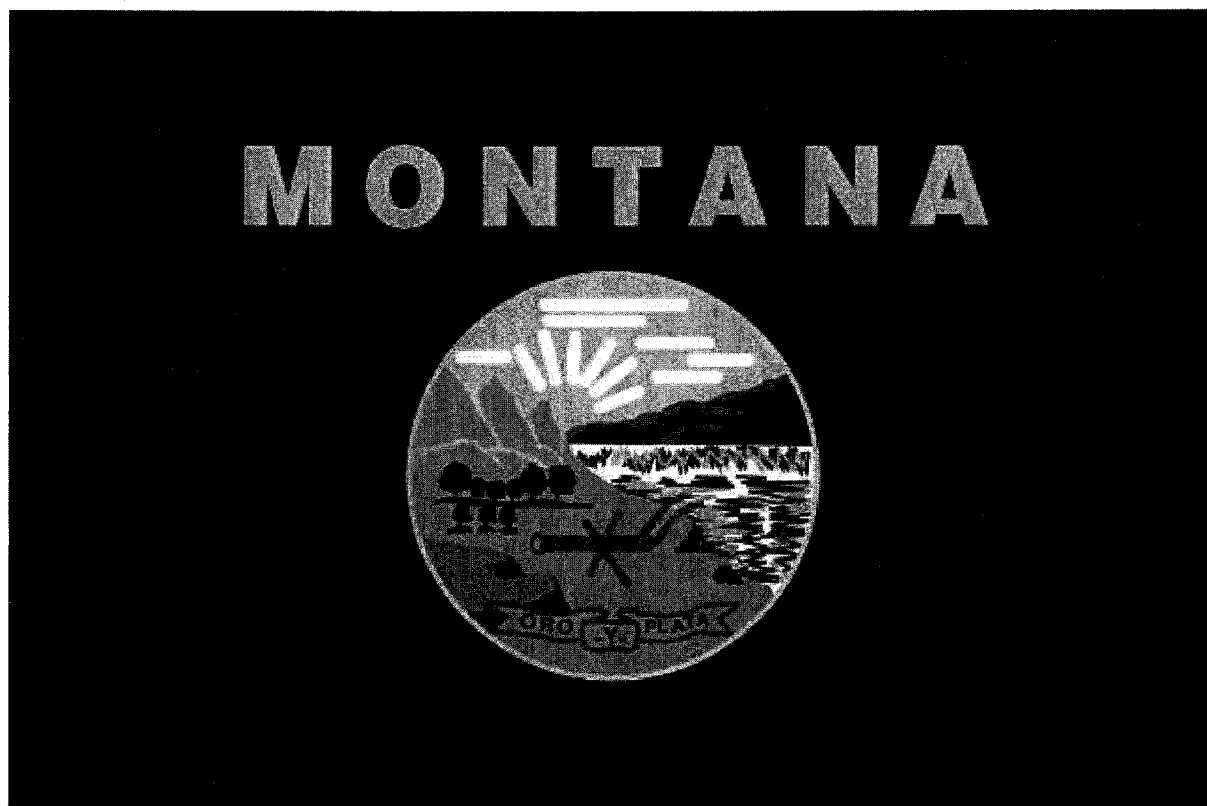


EXHIBIT 21  
DATE 3/11/11  
NO HB 161

To be considered.

## Montana & Medical Marijuana

This portfolio was produced to help illustrate the current conditions in Montana.



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# CRIME IN MONTANA

## 2008-2009 REPORT

PUBLISHED BY THE  
MONTANA BOARD OF CRIME CONTROL  
STATISTICAL ANALYSIS CENTER

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MONTANA BOARD OF CRIME CONTROL STATISTICAL ANALYSIS CENTER:

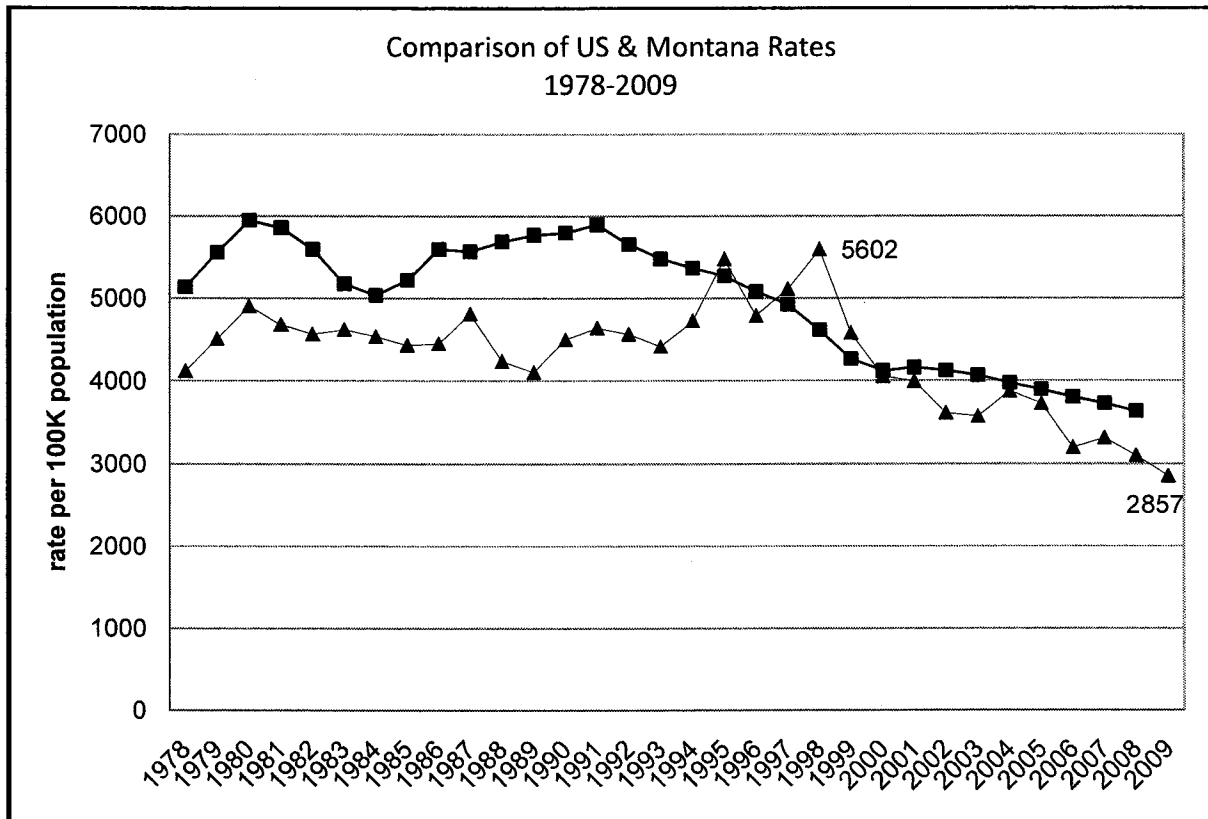
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## TRENDS AND COMPARISONS<sup>7</sup>

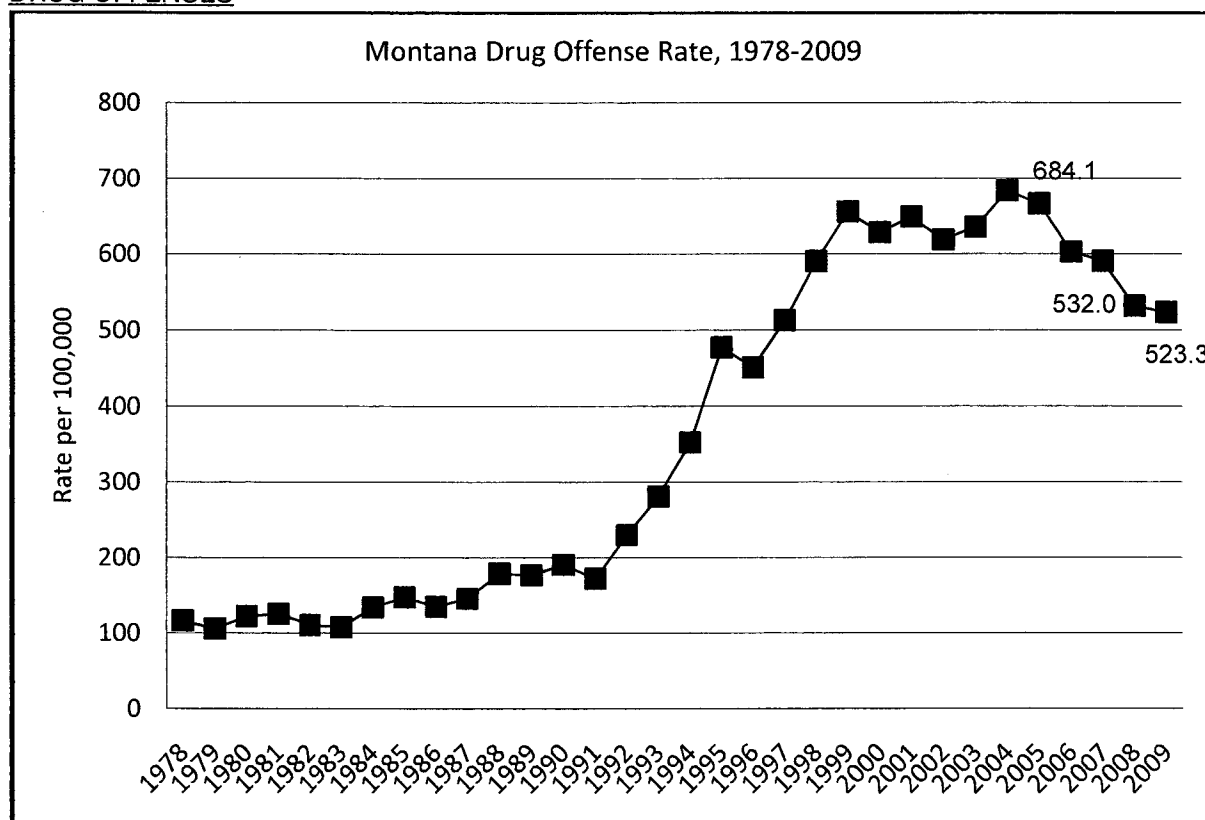


Year	Number of Offenses	Rate per 100,000
1980	36,791	4,906
1990	33,321	4,503
2005	34,248	3,732
2008	29,361	3,104
2009	27,628	2,857

In 2009, the crime index rate for Montana's non-Tribal jurisdictions decreased about 8% when compared with 2008. The total number of index offenses fell about 6% when compared to 2008. Montana's crime rate has decreased four out of the last five years and eight out of the last ten years. It was currently at its lowest rate in the thirty-two year period. Montana's crime rate also appeared to be lower than the national rate.

<sup>7</sup> At the time of this publication, the FBI's *Crime in the United States* publication had not been released. The FBI's *Preliminary Annual Uniform Crime Report: January to December* indicates similar percentage drops in index crimes as experienced in Montana. In 2009, the number of violent crimes decreased 5.5% and the number of property crimes decreased 4.9% when compared to 2008 numbers respectively. In addition, the FBI no longer calculated an Index Crime Rate, so a national rate must be derived from the FBI's published data that is not available in the *Preliminary Report*.

## DRUG OFFENSES



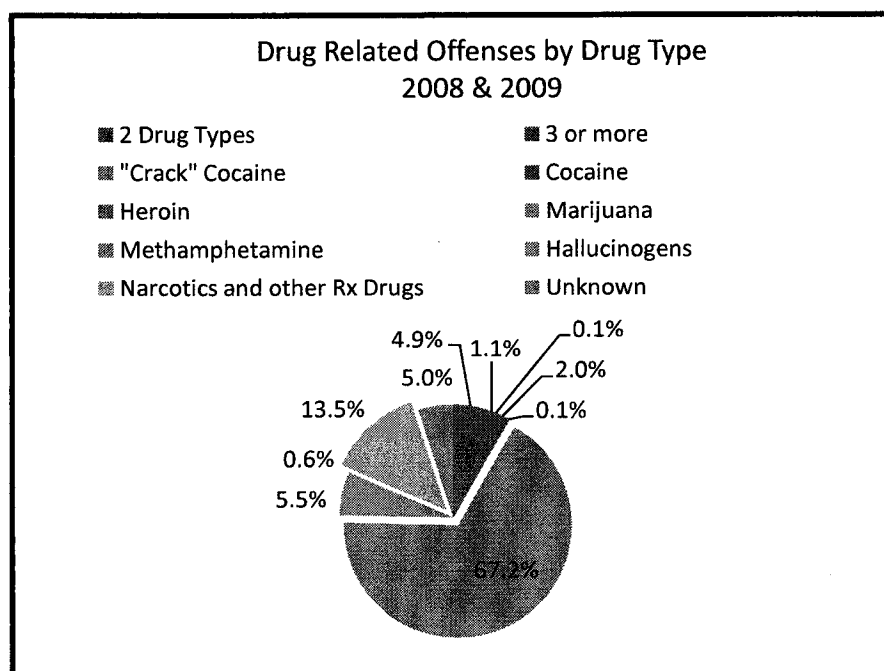
Year	Number of Offenses	Rate per 100,000
1980	917	122.3
1990	1,414	191.1
2005	6,119	666.7
2008	5,033	532.0
2009	5,060	523.3

The number of drug offenses reported by Montana's non-Tribal law enforcement is marginally higher than reported in 2009, but the offense rate per 100,000 residents was slightly lower than the 2008 rate. The rate peaked in 2004 and has gradually fallen off those levels. The drug offense rate has fallen over the last six years.

Offense Description	2008	2009	% Change	Total	% of Total
Possession of Dangerous Drugs	2,160	2,213	2%	4,373	43.3%
Possession of Drug Paraphernalia	2,182	2,188	0%	4,370	43.3%
Sale of Dangerous Drugs	273	270	-1%	543	5.4%
Fraudulently Obtaining Dangerous Drugs	130	133	2%	263	2.6%
Possession with Intent to Sell	92	104	13%	196	1.9%
Possession of Toxic Substances	35	47	34%	82	0.8%
Production or Manufacture of Dangerous Drugs	36	45	25%	81	0.8%
Sale of Dangerous Drugs On/Near School Property	12	13	8%	25	0.2%
Sale of Imitation Dangerous Drug	8	7	-13%	15	0.1%
Possession of Precursors to Dangerous Drugs	5	7	40%	12	0.1%
Operation of Clandestine Lab	3	8	167%	11	0.1%
Altering Labels on Dangerous Drugs	6	3	-50%	9	0.1%
Sells or Gives Intoxicating Substances to Minors	4	5	25%	9	0.1%
Possession of Imitation Drugs With Purpose to Sell	4	2	-50%	6	0.1%
Advertisement of Drug Paraphernalia	1	0	-100%	1	0.0%
Delivery of Drug Paraphernalia to a Minor	0	1	NA	1	0.0%
Manufacture or Delivery of Drug Paraphernalia	1	0	-100%	1	0.0%
Reported on Paper Summaries	81	14	-83%	95	0.9%
<b>Grand Total</b>	<b>5,033</b>	<b>5,060</b>	<b>1%</b>	<b>10,093</b>	<b>100.0%</b>

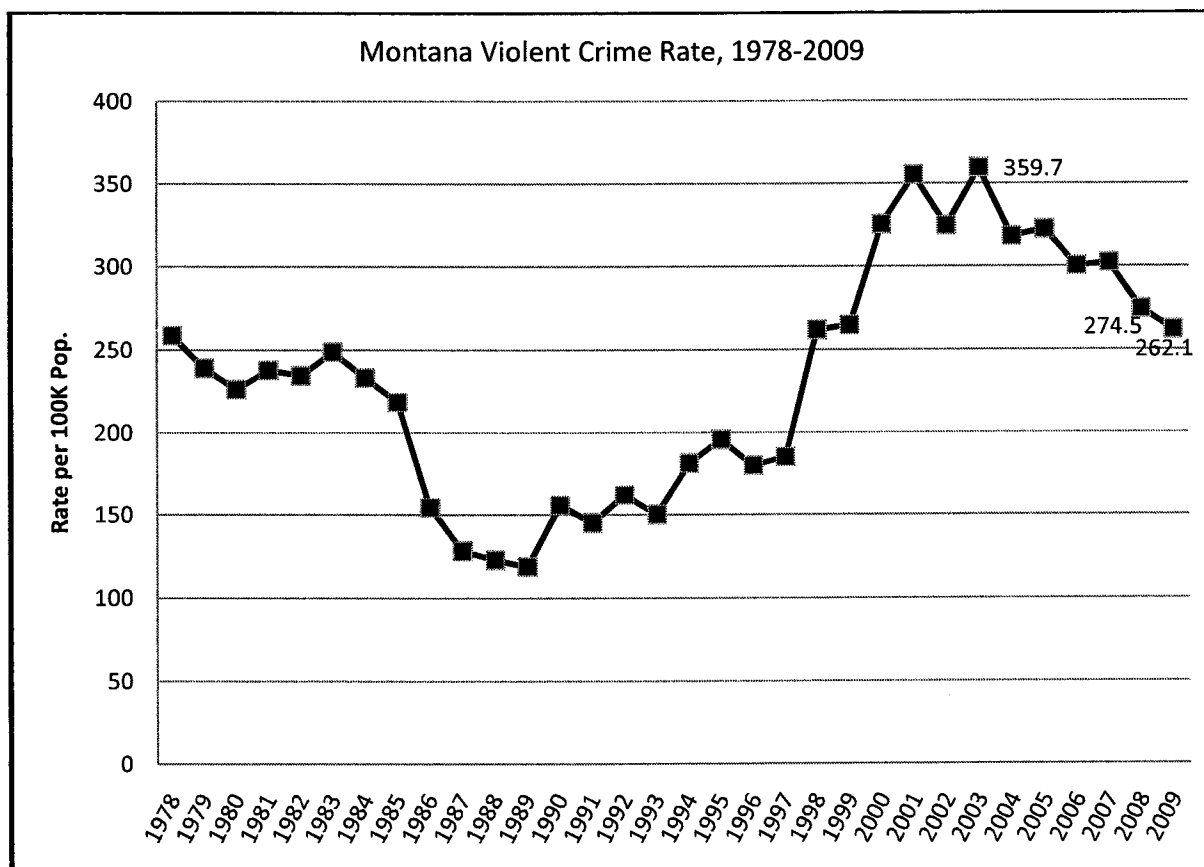
Combined Possession of Dangerous Drugs and Possession of Drug Paraphernalia account for over 86% of all drug offenses in 2008 and 2009 combined. Sale of Dangerous Drugs accounted for a little over 5% of all offenses for the two year time period. Operation of a Clandestine Lab increased from three in 2008 to eight in 2009.

Of the drug offenses known to law enforcement in 2008 and 2009, the drug involved was marijuana in over two-thirds of all offenses. Narcotics and other prescription drugs were involved in 13.5% of all the offenses.



### VIOLENT CRIME TRENDS

Violent crimes, sometimes referred to as crimes against persons, consist of homicide and non-negligent manslaughter; forcible rape, robbery, and aggravated assault. The following examines the aggregate of these offenses since 1978. The sum of the violent crimes is called the violent crime index.

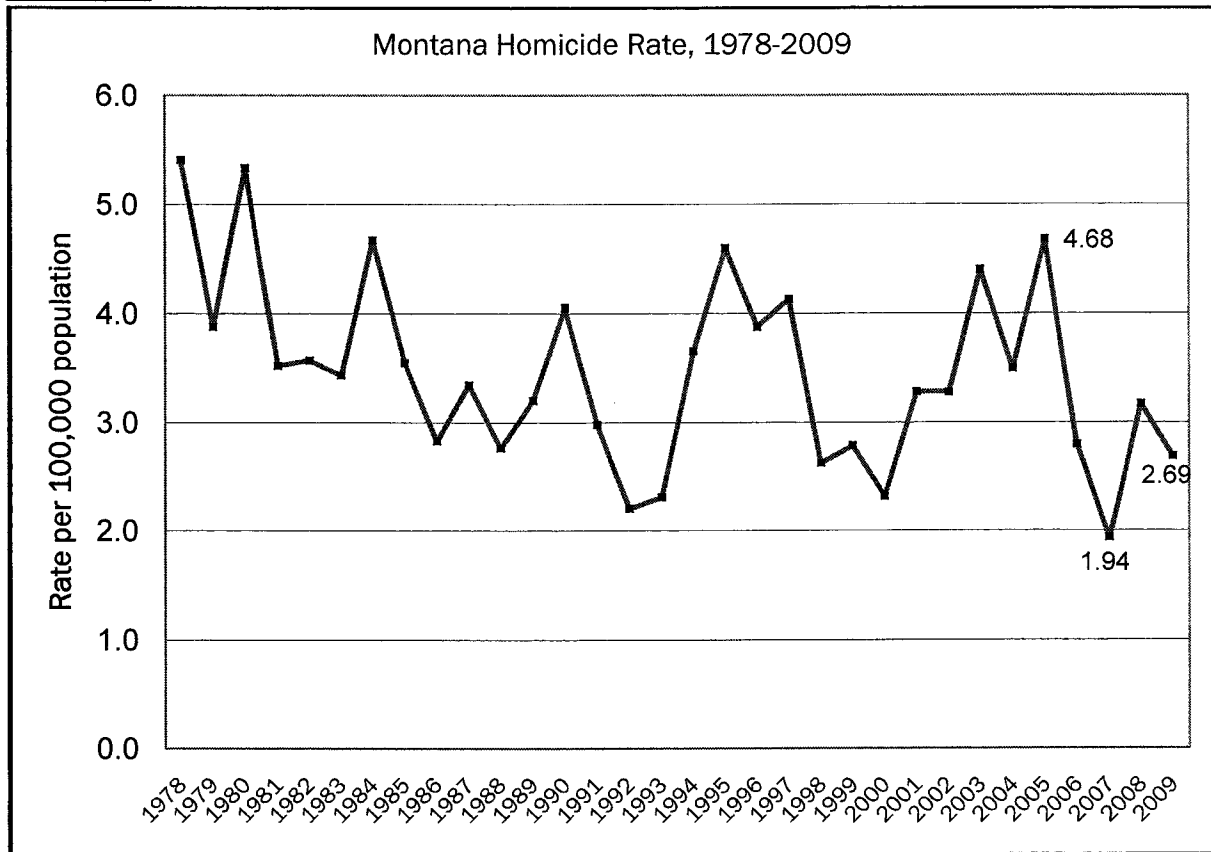


Year	Number of Offenses	Rate per 100,000
1980	1,696	226.2
1990	1,154	155.9
2005	2,959	322.4
2008	2,597	274.5
2009	2,534	262.1

The violent crime rate for Montana's non-Tribal jurisdictions was down 4.5% when compared to 2008. The number of violent crimes known to law enforcement was down only slightly from 2,597 to 2,534. The reduction in the rate was primarily due to an increase in the "reporting population". The violent crime rate decreased four out of the last five years. Montana experienced its highest violent crime rate in 2003; the 2009 rate was down more than 27% from its 2003 peak.

## Part I Violent Crimes

### HOMICIDE<sup>9</sup>



Year	Number of Offenses	Rate per 100,000
1980	40	5.33
1990	30	4.05
2005	43	4.68
2008	30	3.17
2009	26	2.69

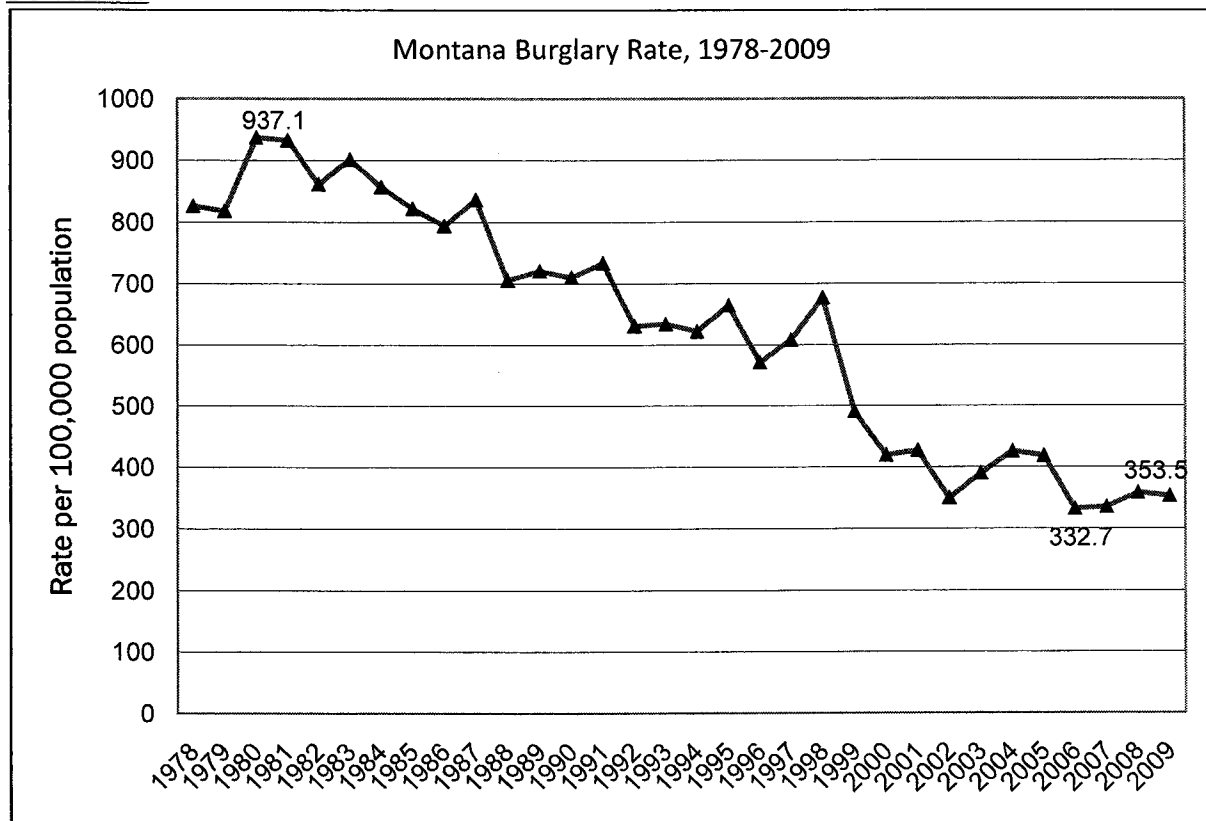
In 2009, 26 homicides incidents were reported by Montana's non-Tribal local law enforcement agencies, slightly down from 30 in 2008, a negligible change. Since 1978, 890 homicides have been reported to the MBCC. The number of homicides reported each year has ranged from 17 to 43. The median number of homicides was 28; the mean was 27.8.

Homicide	2008	2009	Total
Incidents	30	26	56
Victims	33	27	60
Arrests	18	18	36

<sup>9</sup> Attempted homicides are coded as aggravated assaults for reporting purposes.

## Part I Property Crimes

### BURGLARY

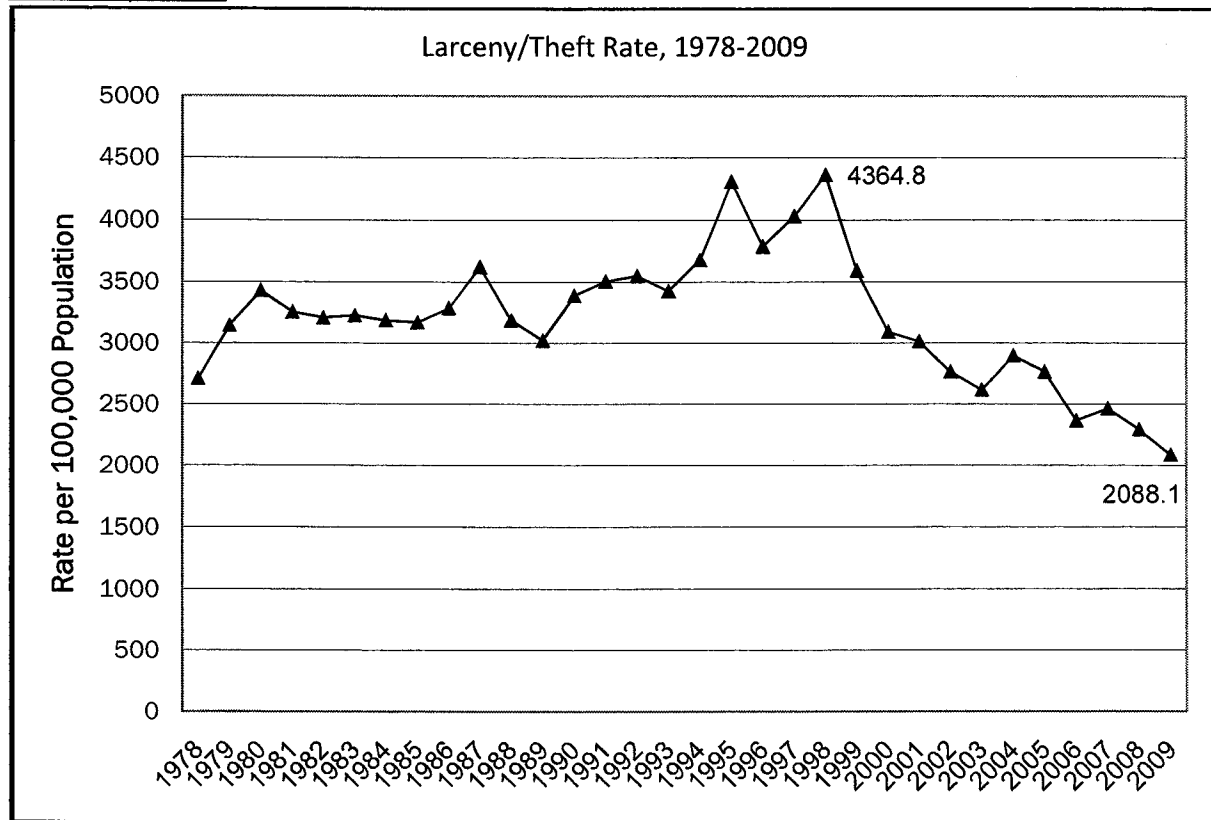


Year	Number of Offenses	Rate per 100,000
1980	7,027	937.1
1990	5,257	710.4
2005	3,842	418.7
2008	3,396	359.0
2009	3,418	353.5

Burglaries known to law enforcement were relatively unchanged in 2009 when compared to 2008. The number of burglary offenses reported by Montana's non-Tribal law enforcement agencies marginally increased over the number reported in 2008. The decrease in the burglary rate was due to an increase in the population coverage. The rate decrease, however, was also marginal. In 2009, offenders entered more than one premise during the commission of burglary nine times, down from twelve in 2008. Only about 6% of the reported burglaries in 2008 and 2009 were "attempted;" the rest were "completed" burglaries.



## LARCENY/THEFT



Year	Number of Offenses	Rate per 100,000
1980	25,749	3,433.8
1990	25,103	3,392.2
2005	25,400	2,767.8
2008	21,735	2,297.4
2009	20,190	2,088.1

Larceny/theft was the most commonly reported offense in Montana. It contributes the most to the crime rate. In 2009, the larceny/theft rate per 100,000 was 2,088, the lowest level since 1978. When compared to 2008, the larceny/theft rate was down 9%. The total number of offenses reported was down about 7.1%.

Over the 32-year period since 1978, the mean number of larceny/theft offenses known to law enforcement was 25,574. The number of offenses reported in 2009 was down about 21% from the 32-year average. The mean larceny/theft rate was 3,203.1. The 2009 rate was significantly down by almost 35% from the 32-year average.



Medical Marijuana Program (MMP)  
January 2011 Registry Information

Patient Summary	January 2011	December 2010
Patients with current enrollments	28,362	27,292
Deceased Patients	51	48
Patients with no caregiver	1,006	978

Caregiver Summary	January 2011	December 2010
Caregivers associated with patients with current enrollments	4,843	4,807
Deceased Caregivers	4	4

Physician Summary	January 2011	December 2010
Physicians associated with patients with current enrollments	357	359

February 1, 2011

**Medical Marijuana Registry**  
**Patients with Current Enrollments**

	<u>Patients</u>	<u>Caregivers</u>
Beaverhead	201	22
Big Horn	144	11
Blaine	75	8
Broadwater	163	33
Carbon	221	39
Carter	2	0
Cascade	1767	286
Chouteau	56	8
Custer	208	21
Daniels	12	1
Dawson	107	22
Deer Lodge	243	14
Fallon	20	0
Fergus	199	48
Flathead	3514	728
Gallatin	3710	664
Garfield	7	0
Glacier	146	4
Golden Valley	20	2
Granite	54	11
Hill	389	32
Jefferson	326	41
Judith Basin	16	4
Lake	697	119
Lewis & Clark	2099	265
Liberty	16	4
Lincoln	626	165
Madison	370	58
McCone	5	3
Meagher	48	8
Mineral	235	48
Missoula	4301	731
Musselshell	137	17
Park	739	188
Petroleum	8	2
Phillips	44	14
Pondera	82	20
Powder River	13	0
Powell	163	27
Prairie	11	5
Ravalli	1528	337
Richland	145	11
Roosevelt	68	6
Rosebud	184	6
Sanders	365	100
Sheridan	54	7
Silver Bow	1000	122

\*Caregiver count includes only those caregivers who are currently associated with a current enrollment.

**Medical Marijuana Registry**  
**Patients with Current Enrollments**

	<u>Patients</u>	<u>Caregivers</u>
Stillwater	123	19
Sweet Grass	73	9
Teton	93	8
Toole	75	6
Treasure	10	1
Valley	87	15
Wheatland	33	4
Wibaux	8	1
Yellowstone	3207	518
<b>Total:</b>	<b>28247</b>	<b>4843</b>
Out Of State:	115	0

\*Caregiver count includes only those caregivers who are currently associated with a current enrollment.

**Medical Marijuana Registry**  
**Active Enrollments by Condition**

Cachexia or Wasting Syndrome	687
Cancer, Glaucoma or HIV (AIDS)	810
Multiple Sclerosis	24
Seizures	246
Severe Nausea	478
Severe Seizures and/or Nausea and/or Muscle Spasms	59
Severe or Chronic Pain	21028
Severe or Chronic Pain & Muscle Spasms	3512
Severe or Chronic Pain & Nausea	1342
Severe or Chronic Pain & Seizures	201
Severe or Chronic Pain, Nausea & Muscle Spasms	507
Severe or Persistent Muscle Spasms	538

\*May contain duplicate counts if a patient reports more than one condition.

**Patient Distribution by Age**

Patients between the ages of 0 and 90

In increments of: 10

51	0.18%	Minors less than 18 years of age.
1122	3.96%	Patients between 18 and 21 years of age
7082	24.97%	Patients between 21 and 30 years of age
5873	20.71%	Patients between 31 and 40 years of age
5442	19.19%	Patients between 41 and 50 years of age
6353	22.40%	Patients between 51 and 60 years of age
2073	7.31%	Patients between 61 and 70 years of age
296	1.04%	Patients between 71 and 80 years of age
60	0.21%	Patients between 81 and 90 years of age
10	0.04%	Patients over 90 years of age.
<hr/> 28362		

**Average Age**

41

**Caregiver and Patient Distribution**

In increments of: 10

2474	Caregivers with 1 Patient
684	Caregivers with 2 Patients
360	Caregivers with 3 Patients
243	Caregivers with 4 Patients
176	Caregivers with 5 Patients
112	Caregivers with 6 Patients
106	Caregivers with 7 Patients
63	Caregivers with 8 Patients
60	Caregivers with 9 Patients
57	Caregivers with 10 Patients
271	Caregivers with 11 to 20 Patients
88	Caregivers with 21 to 30 Patients
35	Caregivers with 31 to 40 Patients
27	Caregivers with 41 to 50 Patients
18	Caregivers with 51 to 60 Patients
16	Caregivers with 61 to 70 Patients
8	Caregivers with 71 to 80 Patients
5	Caregivers with 81 to 90 Patients
5	Caregivers with 91 to 100 Patients
35	Caregivers with more than 100 Patients
<b>4843</b>	

**Physician and Patient Distribution**

In increments of: 10

111	Physicians with 1 Patient
41	Physicians with 2 Patients
30	Physicians with 3 Patients
25	Physicians with 4 Patients
19	Physicians with 5 Patients
16	Physicians with 6 Patients
8	Physicians with 7 Patients
12	Physicians with 8 Patients
5	Physicians with 9 Patients
8	Physicians with 10 Patients
27	Physicians with 11 to 20 Patients
8	Physicians with 21 to 30 Patients
6	Physicians with 31 to 40 Patients
4	Physicians with 41 to 50 Patients
1	Physicians with 51 to 60 Patients
1	Physicians with 61 to 70 Patients
2	Physicians with 71 to 80 Patients
33	Physicians with more than 100 Patients
<hr/> 357	

\*Only groupings with counts greater than 0 are shown on this report.





## Successes in the Fight Against Drugs

### Impact on Demand (1999 through 2009):

#### **Teen drug use:**

900,000 fewer teenagers used illicit drugs last year than a decade earlier. This is a 21% decline. Drug use among high school seniors is down 43 percent since its peak 30 years ago.

#### **Marijuana:**

Current marijuana use by teens has dropped 18%.

#### **Methamphetamine:**

Current methamphetamine use by teens plummeted by 67%.

#### **Ecstasy:**

Current use of Ecstasy has been slashed by 25% among teens.

#### **Cocaine:**

Current cocaine use among high school seniors has dropped 47%, and crack cocaine use decreased 44%.

#### **Steroids:**

Current steroid use by teens has dropped by a third (33%).

#### **LSD:**

Current LSD use has dropped by an astounding 75%.

#### **Workplace drug use:**

Drug use among workers is at its lowest level in 20 years. Since 1988, positive drug tests have fallen by 72%, from 13.6% in 1988 to 3.6% in 2008.

#### **Cocaine use among workers:**

Cocaine use among America's workers declined an unprecedented 57% between 2005 and 2009.

#### **Workplace methamphetamine use:**

2008 workplace drug tests show a 66% decline in methamphetamine use among employees nationwide since 2004.

#### **Workplace marijuana use:**

Workplace drug tests in 2009 showed a 20% drop in marijuana use, compared to 2005.

Source : SAMHSA, Office of Applied Studies, Nation Survey on Drug Use and Health

<http://www.oas.samhsa.gov/2k8state/AppD.htm#TabD-3>

State:	MMJ Passed	Age 12-17 Monthly Use% 2002-2003	Age 12-17 Montly Use% 2007-2008	Percentage of Change
California	1996	7.66	6.86	-10.4
Oregon	1998	9.33	8.22	-11.9
Washington	1998	9.11	7.17	-21.3
Alaska	1998	11.08	8.03	-27.5
Maine	1999	10.56	9.06	-14.2
Nevada	2000	10.56	7.52	-21.5
Hawaii	2000	10.23	7.07	-30.9
Colorado	2000	9.82	9.1	-7.3
Vermont	2004	13.32	10.86	-18.5
<b>Montana</b>	<b>2004</b>	<b>12.07</b>	<b>8.6</b>	<b>-28.7</b>
Rhode Island	2006	10.86	9.46	-12.9
New Mexico	2007	10.35	8.19	-20.9
Michigan	2008	9.23	7.36	-20.3
National Rate		8.03	6.67	-16.9

Measure	Total 12 or Older	AGE GROUP (Years)		
		12-17	18-25	26 or Older

51031

MONTANA

**Table 54. Selected Drug Use, Perceptions of Great Risk, Average Annual Rates of First Use of Marijuana, Past Year Substance Dependence or Abuse, Needing But Not Receiving Treatment, and Serious Psychological Distress in Montana, by Age Group: Percentages, Annual Averages Based on 2003 and 2004 NSDUHs**

Measure	Total 12 or Older	AGE GROUP (Years)		
		12-17	18-25	26 or Older
ILLICIT DRUGS				
Past Month Illicit Drug <sup>1</sup> Use	9.70	13.51	22.27	6.90
Past Year Marijuana Use	12.80	19.84	33.70	8.05
Past Month Marijuana Use	7.95	10.00	20.16	5.45
Past Month Use of Illicit Drugs Other Than Marijuana <sup>1</sup>	3.68	6.24	7.91	2.56
Past Year Cocaine Use	2.27	1.87	6.65	1.53
Past Year Nonmedical Pain Reliever Use	4.96	9.01	12.50	3.04
Perception of Great Risk of Smoking Marijuana Once a Month	39.04	32.59	20.80	43.23
Average Annual Rate of First Use of Marijuana <sup>2</sup>	2.33	8.63	8.93	0.15
ALCOHOL				
Past Month Alcohol Use	55.96	23.00	71.50	57.62
Past Month Binge Alcohol <sup>3</sup> Use	27.72	17.10	52.90	24.60
Perception of Great Risk of Drinking Five or More Drinks Once or Twice a Week	35.46	31.44	24.02	38.08
TOBACCO				
Past Month Tobacco <sup>4</sup> Use	33.92	21.03	53.03	32.20
Past Month Cigarette Use	26.13	15.41	42.45	24.62
Perception of Great Risk of Smoking One or More Packs of Cigarettes Per Day	73.00	66.69	68.01	74.76
PAST YEAR DEPENDENCE, ABUSE, <sup>5</sup> AND TREATMENT				
Illicit Drug <sup>1</sup> Dependence	1.85	3.00	5.36	1.06
Illicit Drug <sup>1</sup> Dependence or Abuse	2.98	6.29	8.76	1.48
Alcohol Dependence	3.95	3.50	9.04	3.09
Alcohol Dependence or Abuse	9.81	10.39	22.43	7.45
Alcohol or Illicit Drug <sup>1</sup> Dependence or Abuse	10.90	13.60	25.12	7.96
Needing But Not Receiving Treatment for Illicit Drug Use <sup>1,6</sup>	2.73	5.68	8.09	1.36
Needing But Not Receiving Treatment for Alcohol Use <sup>7</sup>	9.09	9.27	20.95	6.91
Serious Psychological Distress <sup>8</sup>	9.04 <sup>9</sup>	--	14.38	8.07
Past Month Alcohol Use (for persons aged 12 to 20)	38.10 <sup>9</sup>	--	--	--
Past Month Binge Alcohol <sup>3</sup> Use (for persons aged 12 to 20)	28.98 <sup>9</sup>	--	--	--

-- Not available.

NOTE: Estimates are based on a survey-weighted hierarchical Bayes estimation approach.

<sup>1</sup> Illicit Drugs include marijuana/hashish, cocaine (including crack), heroin, hallucinogens, inhalants, or prescription-type psychotherapeutics used nonmedically.

Illicit Drugs Other Than Marijuana include cocaine (including crack), heroin, hallucinogens, inhalants, or prescription-type psychotherapeutics used nonmedically.

<sup>2</sup> Average Annual Rate = {(Number of Marijuana Initiates in past 24 months) / [(Number of Marijuana Initiates in past 24 months \* 0.5) + Number of persons who never used marijuana]} / 2. Both the computation components, Number of Marijuana Initiates in past 24 months and Number of persons who never used marijuana, are based on a survey-weighted hierarchical Bayes estimation approach. Note that the age group is based on a respondent's age at the time of the interview, not his or her age at first use.

<sup>3</sup> Binge Alcohol Use is defined as drinking five or more drinks on the same occasion (i.e., at the same time or within a couple of hours of each other) on at least 1 day in the past 30 days.

<sup>4</sup> Tobacco products include cigarettes, smokeless tobacco (i.e., chewing tobacco or snuff), cigars, or pipe tobacco.

<sup>5</sup> Dependence or abuse is based on definitions found in the 4<sup>th</sup> edition of the *Diagnostic and Statistical Manual of Mental Disorders* (DSM-IV).

<sup>6</sup> Needing But Not Receiving Treatment refers to respondents classified as needing treatment for illicit drugs, but not receiving treatment for an illicit drug problem at a specialty facility (i.e., drug and alcohol rehabilitation facilities [inpatient or outpatient], hospitals [inpatient only], and mental health centers).

<sup>7</sup> Needing But Not Receiving Treatment refers to respondents classified as needing treatment for alcohol, but not receiving treatment for an alcohol problem at a specialty facility (i.e., drug and alcohol rehabilitation facilities [inpatient or outpatient], hospitals [inpatient only], and mental health centers).

<sup>8</sup> Serious Psychological Distress (SPD) was referred to as Serious Mental Illness (SMI) in prior NSDUH reports. Data for SPD are not defined for 12 to 17 year olds; therefore, the "Total" estimate reflects those aged 18 or older.

<sup>9</sup> Underage drinking is defined for persons aged 12 to 20; therefore, the "Total" estimate reflects that age group and not persons 12 or older.

Source: SAMHSA, Office of Applied Studies, National Survey on Drug Use and Health, 2003 and 2004.

**Figure 2.1 Any Illicit Drug Use in Past Month among Persons Aged 12 or Older, by State: Percentages, Annual Averages Based on 2003 and 2004 NSDUHs**

**Table 54. Selected Drug Use, Perceptions of Great Risk, Average Annual Rates of First Use of Marijuana, Past Year Substance Dependence or Abuse, Needing But Not Receiving Treatment, Serious Psychological Distress, and Having at Least One Major Depressive Episode in *Montana*, by Age Group: Percentages, Annual Averages Based on 2004-2005 NSDUHs**

Percentages, Annual Averages Based on 2004-2005 NSDUHS				
Measure	Total 12 or Older	AGE GROUP		
		12-17	18-25	26 or Older
ILLCIT DRUGS				
Past Month Illicit Drug Use <sup>1</sup>	9.79	12.73	23.07	6.98
Past Year Marijuana Use	13.54	18.34	35.37	8.94
Past Month Marijuana Use	8.17	9.50	21.05	5.65
Past Month Use of Illicit Drugs Other Than Marijuana <sup>1</sup>	3.70	5.78	8.25	2.60
Past Year Cocaine Use	2.33	1.65	8.04	1.38
Past Year Nonmedical Pain Reliever Use	5.44	9.62	13.36	3.45
Perception of Great Risk of Smoking Marijuana Once a Month	35.99	33.45	18.31	39.54
Average Annual Number of Marijuana Initiates <sup>2</sup>	2.17	7.69	8.31	0.21
ALCOHOL				
Past Month Alcohol Use	57.20	21.22	70.43	59.44
Past Month Binge Alcohol Use <sup>3</sup>	28.47	15.55	53.81	25.51
Perception of Great Risk of Drinking Five or More Drinks Once or Twice a Week	34.85	33.18	23.10	37.22
Past Month Alcohol Use (Persons Aged 12 to 20)	35.62 <sup>4</sup>	--	--	--
Past Month Binge Alcohol Use (Persons Aged 12 to 20) <sup>3</sup>	27.67 <sup>4</sup>	--	--	--
TOBACCO PRODUCTS				
Past Month Tobacco Product Use <sup>5</sup>	34.62	19.55	51.47	33.49
Past Month Cigarette Use	27.12	14.68	41.78	26.06
Perception of Great Risk of Smoking One or More Packs of Cigarettes Per Day	71.72	66.42	67.64	73.15
PAST YEAR DEPENDENCE, ABUSE, AND TREATMENT <sup>6</sup>				
Illicit Drug Dependence <sup>1</sup>	1.94	2.88	5.99	1.08
Illicit Drug Dependence or Abuse <sup>1</sup>	2.98	5.84	9.47	1.42
Alcohol Dependence	4.01	3.03	9.52	3.13
Alcohol Dependence or Abuse	9.94	9.01	25.60	7.21
Alcohol or Illicit Drug Dependence or Abuse <sup>1</sup>	11.11	11.73	28.44	7.87
Needing But Not Receiving Treatment for Illicit Drug Use <sup>1,7</sup>	2.64	5.39	8.40	1.24
Needing But Not Receiving Treatment for Alcohol Use <sup>8</sup>	9.03	8.11	23.26	6.55
SERIOUS PSYCHOLOGICAL DISTRESS <sup>9</sup>	12.46 <sup>9</sup>	--	19.90	11.11
HAVING AT LEAST ONE MAJOR DEPRESSIVE EPISODE <sup>10</sup>	9.28 <sup>10</sup>	8.75	12.36	8.72

**Table 54. Selected Drug Use, Perceptions of Great Risk, Average Annual Rates of First Use of Marijuana, Past Year Substance Dependence or Abuse, Needing But Not Receiving Treatment, Serious Psychological Distress, and Having at Least One Major Depressive Episode in Montana, by Age Group: Percentages, Annual Averages Based on 2005-2006 NSDUHs**

Annual Averages Based on 2003-2006 NSDDs				
Measure	Total 12 or Older	AGE GROUP		
		12-17	18-25	26 or Older
ILLICIT DRUGS				
Past Month Illicit Drug Use <sup>1</sup>	10.65	13.46	24.22	7.88
Past Year Marijuana Use	14.10	17.06	36.72	9.70
Past Month Marijuana Use	9.21	10.56	21.96	6.78
Past Month Use of Illicit Drugs Other Than Marijuana <sup>1</sup>	3.51	5.91	8.09	2.40
Past Year Cocaine Use	2.53	1.56	8.70	1.55
Past Year Nonmedical Pain Reliever Use	5.40	9.63	13.40	3.44
Perception of Great Risk of Smoking Marijuana Once a Month	31.96	31.27	15.10	35.04
Average Annual Rate of First Use of Marijuana <sup>2</sup>	1.98	6.24	8.27	0.19
ALCOHOL				
Past Month Alcohol Use	56.71	21.86	70.40	58.73
Past Month Binge Alcohol Use <sup>3</sup>	28.57	15.25	54.85	25.60
Perception of Great Risk of Drinking Five or More Drinks Once or Twice a Week	35.99	32.77	25.02	38.35
Past Month Alcohol Use (Persons Aged 12 to 20)	34.30 <sup>4</sup>	--	--	--
Past Month Binge Alcohol Use (Persons Aged 12 to 20) <sup>3</sup>	25.98 <sup>4</sup>	--	--	--
TOBACCO PRODUCTS				
Past Month Tobacco Product Use <sup>5</sup>	34.23	18.10	51.99	33.14
Past Month Cigarette Use	27.60	13.93	42.25	26.74
Perception of Great Risk of Smoking One or More Packs of Cigarettes Per Day	71.30	66.69	67.87	72.50
PAST YEAR DEPENDENCE, ABUSE, AND TREATMENT <sup>6</sup>				
Illicit Drug Dependence <sup>1</sup>	2.08	3.19	6.47	1.16
Illicit Drug Dependence or Abuse <sup>1</sup>	3.16	6.47	9.44	1.63
Alcohol Dependence	4.47	3.62	9.04	3.76
Alcohol Dependence or Abuse	10.81	10.92	26.72	7.97
Alcohol or Illicit Drug Dependence or Abuse <sup>1</sup>	12.25	13.85	29.49	8.99
Needing But Not Receiving Treatment for Illicit Drug Use <sup>1,7</sup>	2.86	6.04	8.43	1.46
Needing But Not Receiving Treatment for Alcohol Use <sup>8</sup>	10.02	10.04	24.78	7.40
SERIOUS PSYCHOLOGICAL DISTRESS <sup>9</sup>	12.45 <sup>9</sup>	--	19.62	11.18
HAVING AT LEAST ONE MAJOR				

**Table 54. Selected Drug Use, Perceptions of Great Risk, Average Annual Rates of First Use of Marijuana, Year Substance Dependence or Abuse, Needing But Not Receiving Treatment, Serious Psychological Distress and Having at Least One Major Depressive Episode in *Montana*, by Age Group: Percentages, Annual Average Based on 2006-2007 NSDUHs**

Measure	12+	12-17	18-25	26+
<b>ILLCIT DRUGS</b>				
Past Month Illicit Drug Use <sup>1</sup>	10.31	12.46	24.98	7.51
Past Year Marijuana Use	12.46	16.53	35.99	7.89
Past Month Marijuana Use	8.66	9.51	22.07	6.25
Past Month Use of Illicit Drugs Other Than Marijuana <sup>1</sup>	3.85	5.49	9.28	2.71
Past Year Cocaine Use	2.32	1.44	8.17	1.43
Past Year Nonmedical Pain Reliever Use	5.54	8.80	14.07	3.65
Perception of Great Risk of Smoking Marijuana Once a Month	33.21	32.42	17.12	36.07
Average Annual Rate of First Use of Marijuana <sup>2</sup>	1.98	6.48	8.55	0.11
<b>ALCOHOL</b>				
Past Month Alcohol Use	55.43	18.81	68.17	57.92
Past Month Binge Alcohol Use <sup>3</sup>	26.92	13.04	53.41	24.14
Perception of Great Risk of Drinking Five or More Drinks Once or Twice a Week	38.83	33.54	27.17	41.51
Past Month Alcohol Use (Persons Aged 12 to 20)	31.62 <sup>4</sup>	--	--	--
Past Month Binge Alcohol Use (Persons Aged 12 to 20) <sup>3</sup>	24.02 <sup>4</sup>	--	--	--
<b>TOBACCO PRODUCTS</b>				
Past Month Tobacco Product Use <sup>5</sup>	30.95	16.54	49.94	29.53
Past Month Cigarette Use	23.86	12.21	39.69	22.63
Perception of Great Risk of Smoking One or More Packs of Cigarettes Per Day	74.53	67.72	69.88	76.19
<b>PAST YEAR DEPENDENCE, ABUSE, AND TREATMENT<sup>6</sup></b>				
Illicit Drug Dependence <sup>1</sup>	2.00	2.68	5.95	1.23
Illicit Drug Dependence or Abuse <sup>1</sup>	3.05	5.28	9.27	1.70
Alcohol Dependence	4.23	2.71	9.96	3.44
Alcohol Dependence or Abuse	9.63	8.34	24.32	7.28
Alcohol or Illicit Drug Dependence or Abuse <sup>1</sup>	10.72	10.81	26.49	7.99
Needing But Not Receiving Treatment for Illicit Drug Use <sup>1,7</sup>	2.87	4.76	8.89	1.59
Needing But Not Receiving Treatment for Alcohol Use <sup>8</sup>	8.91	7.69	22.50	6.73
<b>SERIOUS PSYCHOLOGICAL DISTRESS<sup>9</sup></b>				
HAVING AT LEAST ONE MAJOR DEPRESSIVE EPISODE <sup>10</sup>	--	8.85	10.47	7.97

# Work-Related Injury in Montana

Fall 2010

## Why are work-related injuries a problem?

An injury is considered work-related if an event in the work place caused or contributed to the condition, this includes the main work place environment and any other location where employees must be for their employment.<sup>1</sup> Work-related injuries are often preventable, yet in Montana, between 2003 and 2009, 247 deaths were reported as being work related. Work place injury deaths are only a small proportion of all the work related injuries occurring in Montana as thousands of work-related non-fatal injuries occur each year as well. Furthermore, work-related injuries are often underreported.<sup>2</sup>

Work-related injuries lead to a significant financial burden for the worker and the employer in direct and indirect costs and have been estimated to cost as much or more as major financial impact diseases like cancer, Alzheimer's, and arthritis.<sup>3</sup>

This report highlights the burden of work-related injury deaths in Montana by looking at death certificate data where an injury occurring at work is indicated in the underlying cause of death. It also includes a brief note regarding non-fatal injuries at work.

- The rate of work-related injury death in Montana in 2009 was 4.8 deaths/100,000 people 18 years and older (Figure 1).
- Montana ranked number two in the nation for work-related injuries in 2007.<sup>4</sup>

## Who dies from an injury at work?

- The majority of work-related injury deaths are among men (Figure 2).
- Work-related injury deaths do not occur disproportionately among races compared to their relative proportion of the state population (Figure 2).
- Over 1/4 of work-related injury deaths are among people 45-54 years old (Figure 2).
- In Montana, people working as truckers and other drivers account for the highest proportion of work-related injury deaths (Table 1).

Figure 2. Work-related injury deaths by selected characteristics, 2003-2009, Montana

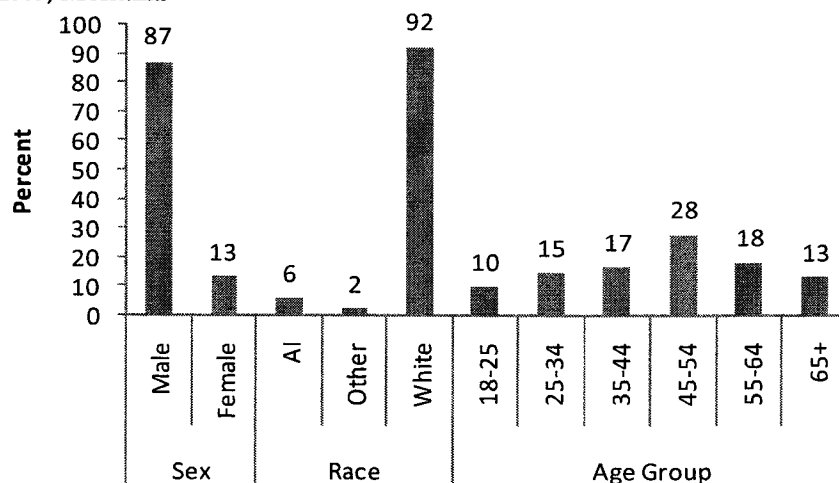
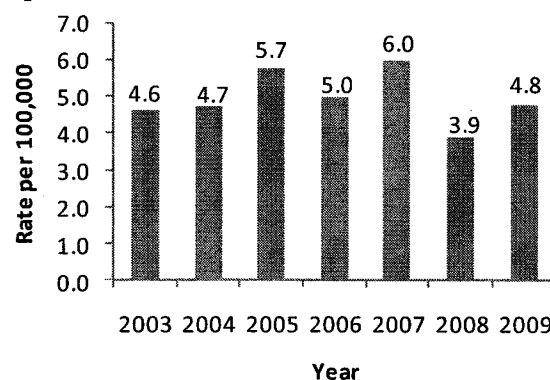


Figure 1. Rate of work-related injury deaths\* among people 18 and older, 2003-2009, Montana



\* See methods and limitations for more information

By lowering the work-related injury rate to the national level, Montana could save \$145 million each year.<sup>4</sup>

Table 1. Percent of work-related injury deaths by profession, 2003-2009, Montana

Profession*	Percent of total work-related injury deaths
Trucker/Driver/Delivery	18.4
Construction/Carpenter/Trade	14.8
Rancher/Farmer	14.4
Business Related	11.2
Laborer	3.6
Logger/Sawyer	3.6
Pilot	3.2
Police	3.2
Lineman	2.8
Administrative Position	2.4
Health	2.0
Mechanic	2.0
Other	18.4

\*Similar professions were combined. Results are dependent on coding of profession at the time of death



**Table 2. Cause of unintentional work-related injury death, 2003-2009, Montana**

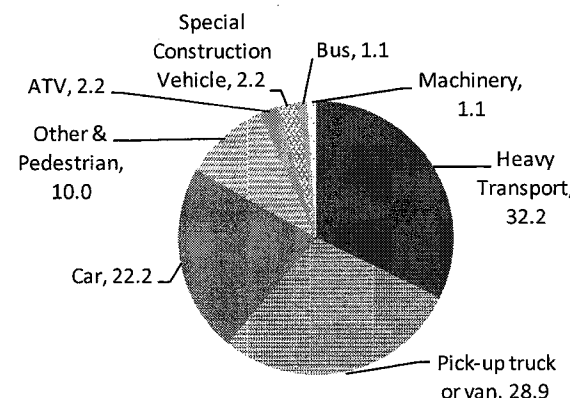
Cause	Percent
Motor Vehicle Crash, traffic	36
Fall	11
Machinery, non vehicular	8
Other land transport, non traffic (All terrain vehicle, Machinery)	8
Other (Explosion, sequelae of MVC, events not elsewhere classified)	6
Other transport (Aircraft, Helicopter)	5
Struck by/against	5
Firearm	4
Poisoning	4
Electrocution	3
Suffocation	3
Pedestrian, non traffic	2
Natural/environment	2
Cut/Pierce	<1
Drowning	<1
Fire/Flame	<1

About 3/4 of non-fatal injuries at work in 2008 resulted in at least one day of missed work.<sup>5</sup>

## What types of injuries occur at work?

While 6% of work-related injury deaths in Montana are classified as intentional (5% suicide and 1% homicide), most are unintentional (data not shown). The most common type of work-related injury is a traffic related motor vehicle crash (MVC) accounting for over 1/3 of all work-related deaths (Table 2). Of those MVC deaths, about 1/3 are related to heavy transport vehicles (Figure 3).

**Figure 3. Type of vehicle involved in work-related MVC deaths, 2003-2009, Montana**



## Non-fatal injuries at work

In 2008, about 8,900 non-fatal injuries were reported to have occurred at work (private sector alone). The most common non-fatal injury at work in Montana was a sprain or strain (45%) followed by soreness/pain (14%), cut/laceration (8%) and fractures (6%).<sup>5</sup> The occupations with the highest percent of non-fatal injuries at work were laborers, stock, freight & material movers followed by nursing aides, orderlies, and attendants; construction workers; carpenters; heavy transport truck drivers; and light or delivery service truck drivers.

## Conclusion and Recommendations

Montana has one of the highest work-related injury death rates in the nation. Work-related injuries come at a high cost to businesses and quality of life for injured individuals. Some occupations account for more work related injury deaths than do others. Substantial effort, including more thorough surveillance, will be needed to decrease the disturbingly high work-related injury death rate in Montana.

For more information contact the Montana Injury Prevention program at: [bperkins@mt.gov](mailto:bperkins@mt.gov), 406-444-4126. For more work-related injury statistics and information please see the Department of Labor and Industry's website at: [www.ourfactsyourfuture.org](http://www.ourfactsyourfuture.org)

## Methods and Limitations

The data presented here are from the Montana Office of Vital Statistics (OVS) unless otherwise noted. Data were included from deaths occurring between 2003 and 2009 with a 'Yes' response to the question 'injury occurred at work'. These data may not be as comprehensive as other data sources due to coding at the time of death certificate certification.

### References:

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- Work Safe Montana. What it costs you. Accessed at: [www.worksafemt.com](http://www.worksafemt.com)
- Montana Department of Labor and Industry. Montana Occupational Injuries and Illnesses. Accessed at: <http://www.ourfactsyourfuture.org/?PAGEID=67&SUBID=141>



## Safety for Use: Cannabis as a Gateway Drug

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Recent research suggests that recreationally used cannabis does not act as a gateway drug to harder drugs such as alcohol, cocaine and heroin. The same will apply to users of medicinal cannabis.

Several research studies addressed the question whether cannabis leads to the use of harder drugs such as alcohol, cocaine and heroin.

According to a study to be published by the Centre for Economic Policy Research, London, cannabis does not lead to the use of hard drugs (Sunday Times of 16 December 2001). Findings are based on a survey of drug users in Amsterdam over a 10-year period. The study by Jan van Ours of Tilburg University in the Netherlands shows that cannabis users typically start using the drug between the ages of 18 and 20, while cocaine use usually starts between 20 and 25. But it concludes that cannabis is not a stepping stone to using cocaine or heroin. Four surveys, covering nearly 17,000 people, were carried out in Amsterdam in 1987, 1990, 1994 and 1997. The study found that there was little difference in the probability of an individual taking up cocaine as to whether or not he or she had used cannabis. Although significant numbers of people in the survey did use soft and hard drugs, this was linked with personal characteristics and a predilection to experimentation.

The Institute of Medicine study characterized marijuana's role as a "gateway drug" as follows:

"Patterns in progression of drug use from adolescence to adulthood are strikingly regular. Because it is the most widely used illicit drug, marijuana is predictably the first illicit drug most people encounter. Not surprisingly, most users of other illicit drugs have used marijuana first. In fact, most drug users begin with alcohol and nicotine before marijuana—usually before they are of legal age.

In the sense that marijuana use typically precedes rather than follows initiation of other illicit drug use, it is indeed a "gateway" drug. But because underage smoking and alcohol use typically precede marijuana use, marijuana is not the most common, and is rarely the first, "gateway" to illicit drug use. There is no conclusive evidence that the drug effects of marijuana are causally linked to the subsequent abuse of other illicit drugs. An important caution is that data on drug use progression cannot be assumed to apply to the use of drugs for medical purposes. It does not follow from those data that if marijuana were available by prescription for medical use, the pattern of drug use would remain the same as seen in illicit use" (Joy et al. 1999)

A more recent study based on national survey data also does not support the hypothesis that increases in marijuana use lead to increased use of more dangerous drugs among the general public. In the American Journal of Public Health, Andrew Golub and Bruce Johnson of the National Development and Research Institute in New York wrote that young people who smoked marijuana in the generations before and after the baby boomers do not appear to be likely to

move on to harder drugs. The researchers said that these findings suggest that the gateway phenomenon reflects norms prevailing among youths at a specific place and time.

“The recent increase in youthful marijuana use has been offset by lower rates of progression to hard drug use among youths born in the 1970s. Dire predictions of future hard drug abuse by youths who came of age in the 1990s may be greatly overstated” (Golub & Johnson 2001).

Research also suggests that the “gateway theory” does not describe the behavior of serious drug users:

“The serious drug users were substantially different from high school samples in their progression of drug use. The serious drug users were less likely to follow the typical sequence identified in previous studies (alcohol, then marijuana, followed by other illicit drugs). They were more likely to have used marijuana before using alcohol, and more likely to have used other illicit drugs before using marijuana. We also found that atypical sequencing was associated with earlier initiation of the use of illicit drugs other than marijuana and greater lifetime drug involvement. These findings suggest that for a large number of serious drug users, marijuana does not play the role of a 'gateway drug'. We conclude that prevention efforts which focus on alcohol and marijuana may be of limited effectiveness for youth who are at risk for serious drug abuse” (Mackesy-Amiti et al. 1997)

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- Joy JE, Watson SJ, Benson JA, eds. *Marijuana and medicine: Assessing the science base*. Institute of Medicine. Washington DC: National Academy Press, 1999.
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## Sequence of Substance Use Initiation

Most persons who will ever initiate the use of cigarettes, alcohol, or tobacco have already done so by the time they are 20 to 25 years old. However, no sequence of use was predominant in that age group in 1999. Approximately 10 percent had not used any of the substances. About 19 percent had used only one substance (i.e., either cigarettes or alcohol). About 24 percent had used only alcohol and cigarettes: 14 percent using cigarettes before alcohol and 10 percent with the opposite pattern. Of those persons who had used all three substances (about 44 percent), the predominant patterns were (a) cigarettes, then alcohol, and then marijuana (14 percent) or (b) alcohol, then cigarettes, and then marijuana (about 13 percent).

Nationally, about 80 percent of all persons who initiated the use of marijuana in 1996 or 1997 at age 25 or younger had previously used either alcohol or cigarettes (or both) (data not shown in tables). The remainder had not previously used any alcohol and cigarettes. The 80 percent is composed of three groups: 8.6 percent had initiated only alcohol before marijuana, 16.2 percent had initiated only cigarettes first, and the majority-55.4 percent-had initiated both alcohol and cigarettes prior to their first marijuana use (data not shown in tables). Overall, therefore, 71.6 percent had initiated cigarettes before marijuana (about 64 percent had initiated alcohol before marijuana).

Among the eight States with large samples, there were significant differences in the average age at first use and in the lag between the initiation of cigarettes and marijuana. For example, the following average ages at first use were found in New York for the group who initiated both alcohol and cigarettes before marijuana: alcohol, 13.6 years; cigarettes, 14.4 years; and marijuana, 17.3 years. Florida, by contrast, displayed the more typical pattern among large States, with an age at first use of cigarettes, 13.8 years, fairly close to the age at first use of alcohol, 14.1 years, and followed by marijuana, 16.7 years.

There was no single cigarette "gateway" to first marijuana use in that (a) the average age at first use of cigarettes differed at the national level between the cigarette-only initiates (age 13.0) and the alcohol-and-cigarettes initiates (age 14.0); (b) the lag between first use of cigarettes and first use of marijuana differed between the cigarette-only group (1.9 years) and the cigarette-and-alcohol initiate group (3 years); and (c) the age and pattern of first use of alcohol, cigarettes, and marijuana varied across the large States.

<http://www.adolescent-substance-abuse.com>

This is a website designed to inform individuals on the dangers of drug use and abuse.

It does an excellent job of illustrating that other drugs are used before marijuana.

The government's review of the 1995 marijuana rescheduling petition did not distinguish between use and abuse according to professional standards, such as those in use by the medical and scientific community. Widespread use of cannabis is not an indication of its abuse potential, and widespread use of marijuana without dependency supports the argument that marijuana is safe for use under medical supervision.

Since marijuana, heroin and other drugs are often referred to as "drugs of abuse", many consider each use of these drugs "abuse". That a clear differentiation between the two terms is often lacking is suggested by Wish (1990), who noted in an editorial of the Journal of the American Medical Association on drug screenings in the workplace that a discussion on the difference between drug use and drug abuse was often regarded as "anachronistic and unpatriotic."

However, the term "substance abuse" is clearly defined and should be differed from simple and unproblematic use, which is the rule and not the exception with most drugs, even in adolescents. Scientists usually differentiate between use, and forms of problematic use. The most frequent terms for problematic or pathological use are abuse, misuse, harmful use and dependency (e.g. Gorman and Derzon 2002, Swift et al. 2001). Definitions for these terms vary so that samples determined using different definitions overlap. Swift et al. (2001) compared dependency according to the DSM-IV (Diagnostic Manual of Diseases) to the concept of dependency in the ICD-10 (The International Classification of Diseases, 10th Revision) in a sample of 10,641 representative Australian adults:

The prevalence of DSM-IV (1.5%) and ICD-10 (1.7%) cannabis dependence was similar. DSM-IV and ICD-10 dependence criteria comprised unidimensional syndromes. The most common symptoms among dependent and non-dependent users were difficulties with controlling use and withdrawal, although there were marked differences in symptom prevalence. Dependent users reported a median of four symptoms. There was good to excellent diagnostic concordance ( $\kappa$  = 0.7-0.9) between systems for dependence but not for abuse/harmful use ( $\kappa$  = 0.4). These findings provide some support for the validity of cannabis dependence.

According to the newer DSM-IV definition cannabis abuse and dependency will be observed more often than according to the criteria of the earlier DSM-III-R:

"We assessed a clinical sample of 102 adolescents using CIDI-SAM. Prevalence of either an abuse or dependence diagnosis was lower with DSM-IV than DSM-III-R except for cannabis and alcohol, and concordance rates were better for dependence than for abuse. For most substances, rates of DSM-IV withdrawal were lower than in DSM-III-R, but rates of DSM-IV physiological dependence remained high. Changes in DSM-IV criteria appear to have impacted diagnoses in these adolescents, particularly for the substances they use most--i.e. alcohol, tobacco, and cannabis" (Mikulich et al. 2001).

Clinical criteria for substance abuse according to DSM-IV are:

A. A maladaptive pattern of substance use leading to clinically significant impairment or distress, as manifested by one or more of the following occurring within a twelve-month period.

(1) Recurrent substance use resulting in a failure to fulfill major role obligations at work, school, or home (e.g. repeated absences or poor work performance related to substance use, substance related absences, suspension, or expulsions from school; neglect of children or household).

(2) Recurrent substance use in situations in which it is physically hazardous (e.g. driving an automobile or operating a machine when impaired by substance use).

(3) Recurrent substance related legal problems (e.g. arrest for substance related disorder conduct).

(4) Continued substance use despite having persistent or recurrent social or interpersonal problems caused or exacerbated by effects of substance (e.g. arguments with spouse about consequences of intoxication, physical fights).

B. Symptoms have never met the criteria for substance dependence for this class of substance.

When talking about the gateway theory, the Institute of Medicine (1999) pointed out that it is necessary to differentiate between use and dependency or abuse to draw the right conclusions from given data:

"Many of the data on which the gateway theory is based do not measure dependence; instead, they measure use -even once- only use. Thus, they show only that marijuana users are more likely to use other illicit drugs (even if only once) than are people who never use marijuana, not that they become dependent or even frequent users. The authors of these studies are careful to point out that their data should not be used as evidence of an inexorable causal progression; rather they note that identifying stage-based user groups makes it possible to identify the specific risk factors that predict movement from one stage of drug use to the next -the real issue in the gateway discussion" (Joy et al. 1999).

Modern epidemiological studies have shown that many people who use cannabis do not differ from other people, that they do not abuse the drug but use it. A survey of 15,000 British children aged 14 and 15 found that young people with high self-esteem are more likely to take illicit drugs than those whose self-confidence is low (Observer of 11 February 2001). The results contradict the concept that drug use is most prevalent among anxious or insecure youth looking for an escape from poor conditions or a way to feel better about themselves. Heather Ashton, a professor of pharmacology at Newcastle University, said that the results of the survey did not surprise her: "Students all report they take drugs for pleasure and that it has nothing to do with anxiety or stress. Years ago young people who take drugs were seen as psychotic or low risk-takers. Now that is not the case."

A report published by the Institute of Medicine provides an equally clear assessment of contemporary scientific standards for defining drug use, abuse, and dependency. The report "Pathways of Addiction, Opportunities in Drug Abuse Research" was published in 1996.

According to its introduction:

"The report employs the standard three-stage conceptualization of drug-taking behavior that applies to all psychoactive drugs, whether licit or illicit. Each stage -- use, abuse, dependence -- is marked by higher levels of use and increasing serious consequences. Thus, when the report refers to the "use" of drugs, the term is usually employed in a narrow sense to distinguish it from intensified patterns of use. Conversely, the term "abuse" is used to refer to any harmful use, irrespective of whether the behavior constitutes a "disorder" in the DSM-IV diagnostic nomenclature. . . . It bears emphasizing that adverse consequences can be associated with patterns of drug use that do not amount to abuse or dependence in a clinical sense, although the focus of this report and the committee's recommendations is on the more intensified patterns of use (i.e, abuse and dependence) since they cause the majority of serious consequences." (Committee on Opportunities in Drug Abuse Research, 1996)

The findings above clarify marijuana's abuse potential relative to other drugs; the use of more dangerous drugs is not a significant risk for most individuals whose consumption of marijuana can be described as use rather than abuse or dependence. These findings affirm that medical users of marijuana are not at risk to use of other illicit drugs due to their regular use of cannabis.

The College on the Problems on Drug Dependence recognizes that marijuana is not a harmless drug, but they note a basis for distinguishing marijuana from drugs such as cocaine and heroin. They also note that serious questions have been raised as to whether marijuana is sufficiently dangerous to justify criminal sanctions, and are critical of DEA's irrational scheduling decisions with respect to marijuana:

"Despite these significant adverse effects, questions have been raised by various investigative commissions about whether the social costs associated with the prohibition of marijuana are warranted by its actual harm to individuals and society, and especially whether imprisonment for mere possession unaccompanied by other crimes -- the law in some states -- is appropriate. It can be argued that placing marijuana in the same category as heroin and cocaine also sends a counterproductive message because it erases distinctions among drugs with very different degrees of hazard." (College on the Problems of Drug Dependence, 1997).

Gorman (2002) uses data from several prospective longitudinal studies (N= 3206) to examine the association between three psychological constructs on the use, misuse, and abuse of marijuana -- providing an example of research and analytical strategies that incorporate the distinctions discussed above. Many drug users not only do not move on to more dangerous drugs, many of them also stop using drugs on their own as they age.

"[This research] examined patterns of illicit drug use, abuse, and remission over a 25-year period and recent treatment use. . . .[utilizing] Retrospectively obtained year-to-year measures from the 1996-1997 survey included use and remission of sedatives, stimulants, marijuana, cocaine, and opiates, as well as substance abuse and psychiatric treatment use. . . . Most drug abusers who had started using drugs by their early 20s appeared to gradually achieve remission. Spontaneous remission was the rule rather than the exception. Nonetheless, considerable unmet needs existed for those who had continued use into middle age." (Price et al, 2001).

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Another criteria of substance abuse deals with "recurrent substance use in situation in which it is physically hazardous (e.g. driving an automobile or operating a machine when impaired by substance use)." Culpability studies provide the best data on the problems cannabis can cause in the context of driving. This method studies crashes post hoc based upon information (usually from coroners and/or police data) about the causative factors of a crash and blood analyzes on drugs. Examination of these causative factors permits the researchers to apportion a score for each crash-involved driver to determine culpability for the crash. Although there are some differences between studies, these scores classify each driver as "culpable", or "not culpable" for the crash. The cases are then divided into groups according to the results of the blood analysis. Those drivers who had no detectable drugs in blood constitute the control group. A recent analyzes summarizes:

"To date (September 1999), seven studies using culpability analysis have been reported, involving a total of 7,934 drivers. Alcohol was detected as the only drug in 1,785 drivers and together with cannabis in 390 drivers. Cannabis was detected in 684 drivers and in 294 of these was the only drug detected. (...)

Using the culpability analysis method the dominant role of alcohol in motor vehicle accidents is clearly demonstrated, confirming the results with the case-control method. Indeed, in three of the studies outlined in Table 28.2 the concentration-dependence of alcohol was exhibited. At BAC  $\geq 0.1$  the culpability ratios were significant, whereas BAC  $< 0.1$  did not achieve significance.

The results to date of crash culpability studies have failed to demonstrate that drivers with cannabinoids in blood are significantly more likely than drug-free drivers to be culpable in road crashes" (Chesher and Longo 2002).

If urine instead of blood is analyzed, predominantly drivers with regular cannabis use will be found and not those actually impaired since cannabis use can be detected for some weeks in the urine of heavy users. In a U.S. study with 414 injured drivers, 32 of the urine samples were positive for at least one potentially impairing drug (Lowenstein and Koziol-McLain 2001). Marijuana was detected most frequently (17%), surpassing alcohol (14%). Compared with drug- and alcohol-free drivers, the odds of crash responsibility were higher in drivers testing positive for alcohol alone (odds ratio [OR] = 3.2) and in drivers testing positive for alcohol in combination with other drugs (OR = 3.5). Marijuana alone was not associated with crash responsibility (OR = 1.1). In a multivariate analysis, controlling for age, gender, seat belt use, and other confounding variables, only alcohol predicted crash responsibility. Researchers concluded:

"Alcohol remains the dominant drug associated with injury-producing traffic crashes. Marijuana is often detected, but in the absence of alcohol, it is not associated with crash responsibility" (Lowenstein and Koziol-McLain 2001).



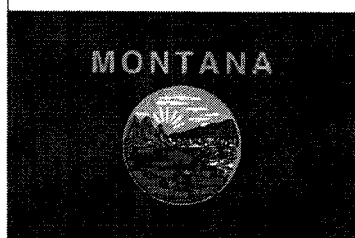
Montana - Crashes and All Victims

FARS Encyclopedia

1996	200
1997	265
1998	237
1999	220
2000	237
2001	230
2002	269
2003	262
2004	229
2005	251
2006	264
2007	277
2008	229
2009	221

December 15, 2010

## THE STATE OF MONTANA'S ECONOMY



REGIONAL ANALYSIS / MONTANA

Contact:

Jim Glassman

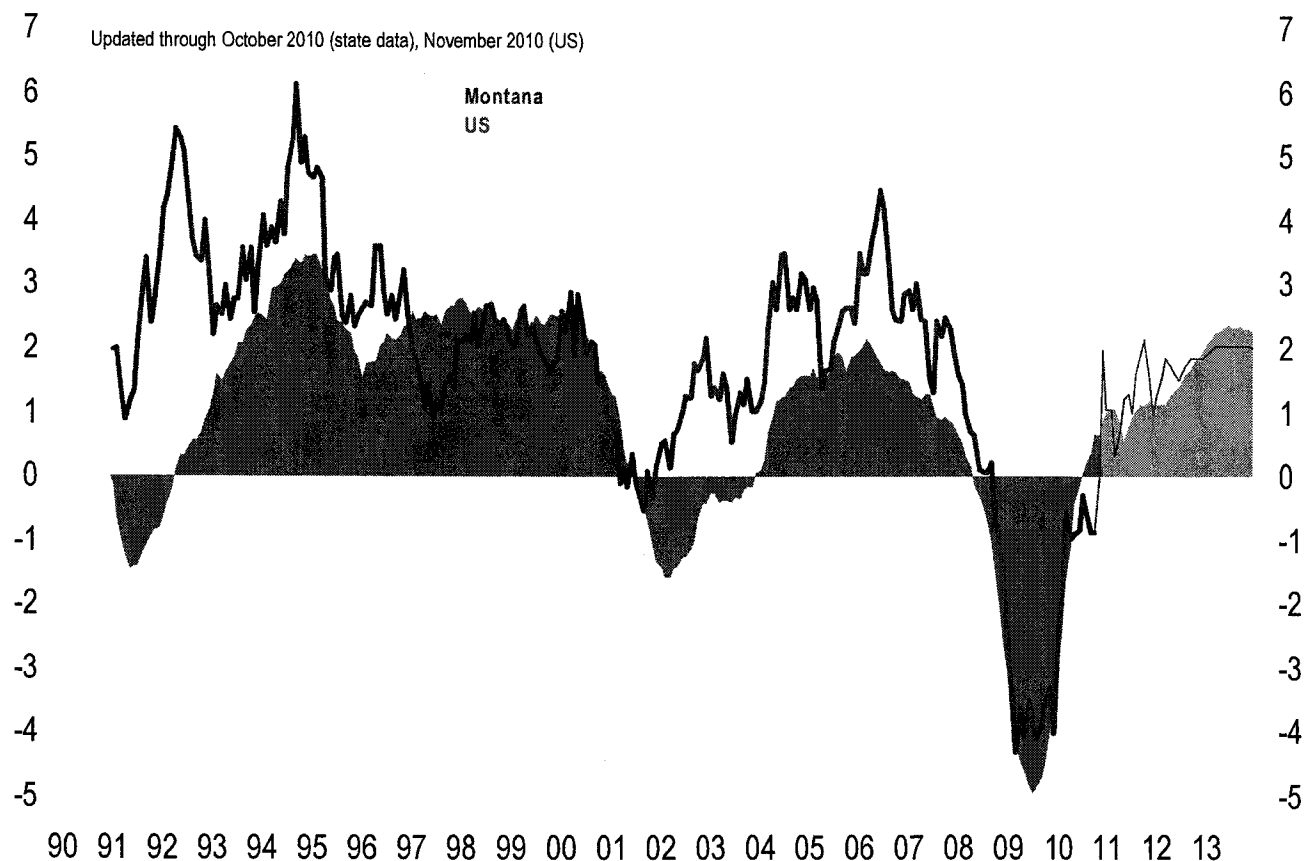
[jglassman@jpmorgan.com](mailto:jglassman@jpmorgan.com)

212-270-0778

**CHASE** 

# Employment growth

## Employment (percent change from 12 months earlier)



### What the chart shows ...

- Job growth in the state, compared with the national job market.
- Montana's economy has not struggled as much as the national economy and appears to be in a turnaround.
- Job losses are easing.

### Key messages ...

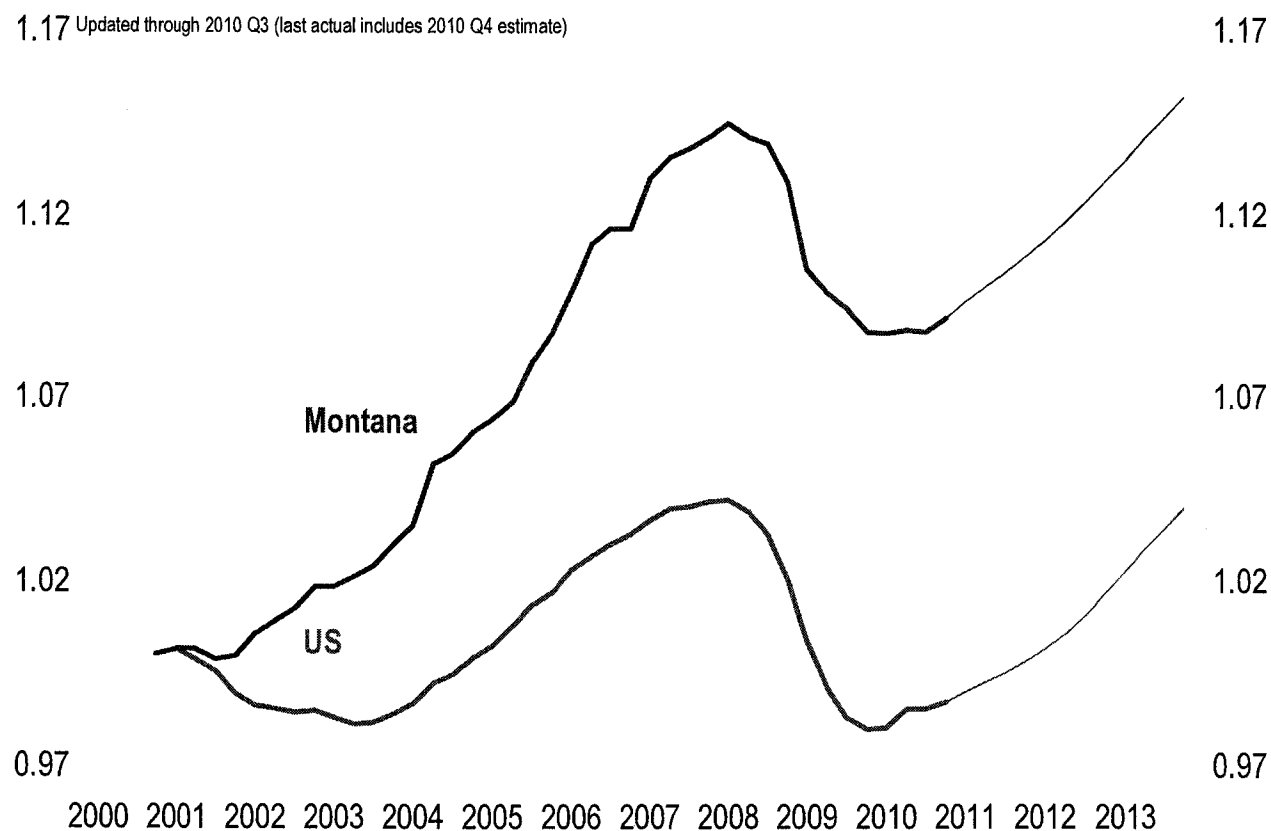
- Montana's fortunes are tied somewhat to the strength of the energy states.

Source: US Department of Labor

# Employment

## Employment (ratio to the 2000 Q4 level)

1.17 Updated through 2010 Q3 (last actual includes 2010 Q4 estimate)



### What the chart shows ...

- The cumulative change in employment since 2000 Q4, the peak of the previous business expansion.
- Montana's employment base expanded 14% in the last decade, but gave back one third of that expansion in this recession.

### Key messages ...

- Montana's employment count is expected to recover.

Source: US Department of Labor